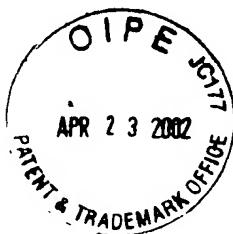


RECEIVED

APR 25 2002

TECH CENTER 1600/2900



SEQUENCE LISTING

<110> Yang, Chu-Wen
 Tsou, Ann-Ping
 Chi, Chin-Wen
 Fann, Ming-Ji
 Chou, Chen-Kung

<120> CELL CYCLE REGULATOR PROTEIN

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<140> 10/051,409

<141> 2002-01-18

<150> 60/262,885

<151> 2001-01-19

<160> 6

<170> FastSEQ for Windows Version 4.0

<210> 1

<211> 2424

<212> DNA

<213> Mus musculus

<400> 1

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| accaacttgg | ctcatagaaa | gtcttgttct | cagaaggaga | acagacacag | ggtgtatgag | 120 |
| ggaaaacagac | acttcgtttt | gaaggacgtc | aaatccac | ttgaaggggcg | agagcttgg | 180 |
| aatatacacag | agacatcga | agacctctct | ccagagaagg | ccagctccaa | aaacaaggtca | 240 |
| gtaaaaatgg | tcctgagtga | ccaaacggaa | cajctccccc | agaagtataaa | ggaagaaaaaa | 300 |
| caacttcaaa | aactgaaaaga | acagcgagag | aaagccaaac | gtggagtttt | caaagtgggt | 360 |
| ctctatagac | ccgttgtggcc | tgggtttttt | gtcacagacc | agaggggtgc | aaaagctgag | 420 |
| ccagaaaagg | cttttccaca | taatggacgg | attacaagat | aaaagccaa | agaatataatg | 480 |
| gagcagacta | agattggtag | caggaatgtt | cctaaagccaa | cccagatgtc | ccaaagccaa | 540 |
| acttctgaaa | aacaaccatt | agacagagag | agaaaaagtta | tgcagectgt | gttgttca | 600 |
| tcaggaaaag | ggactgaatc | agcggttact | cagagagcc | agctgtatggc | ccgaacagt | 660 |
| tcatccacta | caagaaagcc | agtccaaaga | cccaacaaatg | agaaaaggatc | agaaaagaatg | 720 |
| agaccaagt | gagggagacc | tgccaaaaaa | ccagaaggcc | agccggacaa | ggtcatttcc | 780 |
| tcacaaatgtt | agccccggcc | aaagcatttg | ccatccaga | ccagggaaac | aaatggaaaatg | 840 |
| ggtgtctcg | gagtcttccg | agaagtggaa | agcttgcctg | ccaaacgc | tgcaccaagg | 900 |
| aaaggaaagga | agtccttgc | cccccaagcc | tgtgttcc | agccccccgt | tggtgtgaag | 960 |
| agtcaccagg | ttgttccct | ggcccttgc | agtgccaa | cccaatttgc | ccatgttgc | 1020 |
| ttttggaaacc | agttaaagacc | agaagttttt | agcactacaa | ctcaagacaa | agccaaatgaa | 1080 |
| atcttggtac | agcaaggatt | ggatgtgtca | acagacccgt | gtaaaggaa | tgtttttaaat | 1140 |
| cagaaggccg | cttctacttc | agattccaaat | ccgttttgc | tggatgtgt | ccatgttgc | 1200 |
| gaaaggagcc | aaggccagac | cttcacggcc | ccccacccat | ccatgttgc | ccatgttgc | 1260 |
| ctccaaatcg | aaactgacag | gtgtaccccg | ccatgttgc | ccatgttgc | ccatgttgc | 1320 |
| ctggacatct | ctgtatgtac | taaaggctt | ccatgttgc | ccatgttgc | ccatgttgc | 1380 |
| cttatacagg | agagattccg | acagtttgc | ccatgttgc | ccatgttgc | ccatgttgc | 1440 |
| ggtgaaaagg | agacgacat | ccatgttgc | ccatgttgc | ccatgttgc | ccatgttgc | 1500 |
| gtcgatgt | tgaaccagaa | atccaaacaa | ctgtatgt | ccatgttgc | ccatgttgc | 1560 |
| gacagcaata | atccaaacaa | aaaatccctc | ccggaaaaaa | ccatgttgc | ccatgttgc | 1620 |
| aaagccaaac | aggatgacg | ccggccggcc | ccatgttgc | ccatgttgc | ccatgttgc | 1680 |

| | | | | | | |
|-------------|-------------|--------------|-------------|------------|---------------|------|
| aatgcaatga | aaggcaggcc | acagcaggaa | gtgcaggccc | acgcagcago | tccggagaacc | 1740 |
| acaaaaggaag | ttgacaaaat | agtgttgc | gctgggttt | tcagaatcga | gagcccagtg | 1800 |
| aagtattct | cagtctgtc | ttctgaacgt | cgtttc当地 | qatttggAAC | acccctgtct | 1860 |
| gccagcaaaag | tttgtccctga | gggcaggggct | cgaggggacc | tttttgcata | gaagatgcga | 1920 |
| ctgaaagaagc | cggaccctca | gagcagcaag | agtgcata | tttgcata | gttttcagat | 1980 |
| ggttttgaaa | gcagggtgcga | cgtagaagac | acccctgttc | ctggagagca | agattcaagt | 2040 |
| gacatagagc | atgtatgtaaa | taaaaataaaat | gtcaagatgg | tttttttctc | tgttgcggaaacg | 2100 |
| aatttgcctc | tttctgttgg | tgtatgtcaat | accaatcaaa | tttttttctc | tttttttctc | 2160 |
| gaaggagcga | gcactgcagt | ccatctccat | gatttgcata | tttttttctc | tttttttctc | 2220 |
| accccttcac | agagcaaaac | cttcataagaa | gaaatgtgagg | tttttttctc | tttttttctc | 2280 |
| cataaaagtc | tcacttgc | atgcacaccc | tttgcata | tttttttctc | tttttttctc | 2340 |
| ccctgcactc | gggaggagac | cagacacccca | tttttttctc | tttttttctc | tttttttctc | 2400 |
| gacccatcc | tcttctc | acta | tttttttctc | tttttttctc | tttttttctc | 2424 |

• 210: 2

211> 808

• 212 • PRT

· 213 > *Mus musculus*

· 400> 2

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Leu | Val | Ser | Arg | Phe | Ala | Ser | Arg | Phe | Arg | Lys | Asp | Ser | Ser | Thr |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Glu | Met | Val | Arg | Thr | Asn | Leu | Ala | His | Arg | Lys | Ser | Leu | Ser | Gln | Lys |
| | | | | 20 | | | | | 25 | | | | | 30 | |
| Glu | Asn | Arg | His | Arg | Val | Tyr | Glu | Arg | Asn | Arg | His | Phe | Gly | Leu | Lys |
| | | | | | 35 | | | | 40 | | | | | 45 | |
| Asp | Val | Asn | Ile | Pro | Leu | Glu | Gly | Arg | Glu | Leu | Gly | Asn | Ile | His | Glu |
| | | | | | 50 | | | | 55 | | | | | 60 | |
| Thr | Ser | Gln | Asp | Leu | Ser | Pro | Glu | Lys | Ala | Ser | Ser | Lys | Thr | Arg | Ser |
| | | | | | 65 | | | | 70 | | | | | 75 | |
| Val | Lys | Met | Val | Leu | Ser | Asp | Gln | Arg | Lys | Gln | Leu | Leu | Gln | Lys | Tyr |
| | | | | | 85 | | | | 90 | | | | | 95 | |
| Lys | Glu | Glu | Lys | Gln | Leu | Gln | Lys | Leu | Lys | Glu | Gln | Arg | Glu | Lys | Ala |
| | | | | | 100 | | | | 105 | | | | | 110 | |
| Lys | Arg | Gly | Val | Phe | Lys | Val | Gly | Leu | Tyr | Arg | Pro | Ala | Ala | Pro | Gly |
| | | | | | 115 | | | | 120 | | | | | 125 | |
| Phe | Leu | Val | Thr | Asp | Gln | Arg | Gly | Ala | Lys | Ala | Glu | Pro | Glu | Lys | Ala |
| | | | | | 130 | | | | 135 | | | | | 140 | |
| Phe | Pro | His | Thr | Gly | Arg | Ile | Thr | Arg | Ser | Lys | Thr | Lys | Glu | Tyr | Met |
| | | | | | 145 | | | | 150 | | | | | 155 | |
| Glu | Gln | Thr | Lys | Ile | Gly | Ser | Arg | Asn | Val | Pro | Lys | Ala | Thr | Gln | Ser |
| | | | | | 165 | | | | 170 | | | | | 175 | |
| Asp | Gln | Arg | Gln | Thr | Ser | Glu | Lys | Gln | Pro | Leu | Asp | Arg | Glu | Arg | Lys |
| | | | | | 180 | | | | 185 | | | | | 190 | |
| Val | Met | Gln | Pro | Val | Leu | Phe | Thr | Ser | Gly | Lys | Gly | Thr | Glu | Ser | Ala |
| | | | | | 195 | | | | 200 | | | | | 205 | |
| Ala | Thr | Gln | Arg | Ala | Lys | Leu | Met | Ala | Arg | Thr | Val | Ser | Ser | Thr | Thr |
| | | | | | 210 | | | | 215 | | | | | 220 | |
| Arg | Lys | Pro | Val | Thr | Arg | Ala | Thr | Asn | Glu | Lys | Gly | Ser | Glu | Arg | Met |
| | | | | | 225 | | | | 230 | | | | | 235 | |
| Arg | Pro | Ser | Gly | Gly | Arg | Pro | Ala | Lys | Lys | Pro | Glu | Gly | Lys | Pro | Asp |
| | | | | | 245 | | | | 250 | | | | | 255 | |
| Lys | Val | Ile | Pro | Ser | Lys | Val | Glu | Arg | Asp | Glu | Lys | His | Leu | Asp | Ser |
| | | | | | 260 | | | | 265 | | | | | 270 | |
| Gln | Thr | Arg | Glu | Thr | Ser | Glu | Met | Gly | Leu | Leu | Gly | Val | Phe | Arg | Glu |
| | | | | | 275 | | | | 280 | | | | | 285 | |
| Val | Glu | Ser | Leu | Pro | Ala | Thr | Ala | Pro | Ala | Gln | Gly | Lys | Glu | Arg | Lys |

| | | |
|---|-----|-----|
| 290 | 295 | 300 |
| Ser Phe Ala Pro Lys His Cys Val Phe Gln Pro Pro Cys Gly Leu Lys | | |
| 305 | 310 | 315 |
| Ser Tyr Gln Val Ala Pro Leu Ser Pro Arg Ser Ala Asn Ala Phe Leu | | |
| 320 | 325 | 330 |
| Thr Pro Asn Cys Asp Trp Asn Gln Leu Arg Pro Gln Val Phe Ser Thr | | |
| 335 | 340 | 345 |
| Thr Thr Gln Asp Lys Ala Asn Glu Ile Leu Val Gln Gln Gly Leu Glu | | |
| 355 | 360 | 365 |
| Ser Leu Thr Asp Arg Ser Lys Glu His Val Leu Asn Gln Lys Gly Ala | | |
| 370 | 375 | 380 |
| Ser Thr Ser Asp Ser Asn His Ala Ser Val Lys Gly Val Pro Cys Ser | | |
| 385 | 390 | 395 |
| Glu Gly Ser Glu Gly Gln Thr Ser Gln Pro Pro His Asp Val Pro Tyr | | |
| 405 | 410 | 415 |
| Phe Arg Lys Ile Leu Gln Ser Glu Thr Asp Arg Leu Thr Ser His Cys | | |
| 420 | 425 | 430 |
| Leu Glu Trp Glu Gly Lys Leu Asp Leu Asp Ile Ser Asp Glu Ala Lys | | |
| 435 | 440 | 445 |
| Gly Leu Ile Arg Thr Thr Val Gly Gln Thr Arg Leu Leu Ile Lys Gln | | |
| 450 | 455 | 460 |
| Arg Phe Arg Gln Phe Glu Gly Leu Val Asp Asn Cys Glu Tyr Lys Arg | | |
| 465 | 470 | 475 |
| Gly Glu Lys Glu Thr Thr Cys Thr Asp Leu Asp Gly Phe Trp Asp Met | | |
| 480 | 485 | 490 |
| Val Ser Phe Gln Val Asp Asp Val Asn Gln Lys Phe Asn Asn Leu Ile | | |
| 500 | 505 | 510 |
| Lys Leu Glu Ala Ser Gly Trp Lys Asp Ser Asn Asn Pro Ser Lys Lys | | |
| 515 | 520 | 525 |
| Val Leu Arg Lys Lys Ile Val Pro Gly Arg Thr Ser Lys Ala Lys Gln | | |
| 530 | 535 | 540 |
| Asp Asp Asp Gly Arg Ala Ala Ala Arg Ser Arg Leu Ala Ala Ile Lys | | |
| 545 | 550 | 555 |
| Asn Ala Met Lys Gly Arg Pro Gln Gln Glu Val Gln Ala His Ala Ala | | |
| 565 | 570 | 575 |
| Ala Pro Glu Thr Thr Lys Glu Val Asp Lys Ile Val Phe Asp Ala Gly | | |
| 580 | 585 | 590 |
| Phe Phe Arg Ile Glu Ser Pro Val Lys Ser Phe Ser Val Leu Ser Ser | | |
| 595 | 600 | 605 |
| Glu Arg Arg Ser Gln Arg Phe Gly Thr Pro Leu Ser Ala Ser Lys Val | | |
| 610 | 615 | 620 |
| Val Pro Glu Gly Arg Ala Ala Gly Asp Leu Leu Arg Gln Lys Met Pro | | |
| 625 | 630 | 635 |
| Leu Lys Lys Pro Asp Pro Gln Ser Ser Lys Ser Glu His Val Asp Arg | | |
| 645 | 650 | 655 |
| Thr Phe Ser Asp Gly Leu Glu Ser Arg Cys His Val Glu Asp Thr Pro | | |
| 660 | 665 | 670 |
| Cys Pro Gly Glu Gln Asp Ser Ser Asp Ile Glu His Asp Val Asn Lys | | |
| 675 | 680 | 685 |
| Ile Asn Val Lys Met Asp Cys Phe Ser Val Glu Thr Asn Asn Leu Pro Leu | | |
| 690 | 695 | 700 |
| Pro Ala Gly Asp Ala Asn Thr Asn Gln Lys Glu Ala Ile Ser Ala Val | | |
| 705 | 710 | 715 |
| Glu Gly Ala Ser Thr Ala Val Thr Ser Gln Asp Leu Leu Met Ser Asn | | |
| 725 | 730 | 735 |
| Pro Glu Thr Asn Thr Ser Ser Gln Ser Asn Thr Ser Gln Glu Glu Ala | | |
| 740 | 745 | 750 |

210 > 3

4211 2538

112. DNA

•213• *Homo sapiens*

·400· 3

ctacaaccag gagaattt

2538

4210 - 4
4211 - 846
4212 - PR1
4213 - Hom

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 Glu Met Ile Arg Thr Lys Ile Ala His Arg Lys Ser Leu Ser Gln Lys
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 Glu Asn Arg His Lys Glu Tyr Glu Arg Asn Arg His Phe Gly Leu Lys
 35 40 45
 Asp Val Asn Ile Pro Thr Leu Glu Gly Arg Ile Leu Val Glu Leu Asp
 50 55 60
 Glu Thr Ser Gln Glu Leu Val Pro Glu Lys Thr Asn Val Lys Pro Arg
 65 70 75 80
 Ala Met Lys Thr Ile Leu Gly Asp Gln Arg Lys Gln Met Leu Gln Lys
 85 90 95
 Tyr Lys Glu Glu Lys Gln Leu Gln Lys Leu Lys Glu Gln Arg Glu Lys
 100 105 110
 Ala Lys Arg Gly Ile Phe Lys Val Gly Arg Tyr Arg Pro Asp Met Pro
 115 120 125
 Cys Phe Leu Leu Ser Asn Gln Asn Ala Val Lys Ala Glu Pro Lys Lys
 130 135 140
 Ala Ile Pro Ser Ser Val Arg Ile Thr Arg Ser Lys Ala Lys Asp Gln
 145 150 155 160
 Met Glu Gln Thr Lys Ile Asp Asn Glu Ser Asp Val Arg Ala Ile Arg
 165 170 175
 Pro Gly Pro Arg Gln Thr Ser Glu Lys Lys Val Ser Asp Lys Glu Lys
 180 185 190
 Lys Val Val Gln Pro Val Met Pro Thr Ser Leu Arg Met Thr Arg Ser
 195 200 205
 Ala Thr Gln Ala Ala Lys Gln Val Pro Arg Thr Val Ser Ser Thr Thr
 210 215 220
 Ala Arg Lys Pro Val Thr Arg Ala Ala Asn Glu Asn Glu Pro Glu Gly
 225 230 235 240
 Lys Val Pro Ser Lys Gly Arg Pro Ala Lys Asn Val Glu Thr Lys Pro
 245 250 255
 Asp Lys Gly Ile Ser Cys Lys Val Asp Ser Glu Glu Asn Thr Leu Asn
 260 265 270
 Ser Gln Thr Asn Ala Thr Ser Gly Met Asn Pro Asp Gly Val Leu Ser
 275 280 285
 Lys Met Glu Asn Leu Pro Glu Ile Asn Thr Ala Lys Ile Lys Gly Lys
 290 295 300
 Asn Ser Phe Ala Pro Lys Asp Phe Met Phe Gln Pro Leu Asp Gly Leu
 305 310 315 320
 Lys Thr Tyr Gln Val Thr Pro Met Thr Pro Arg Ser Ala Asn Ala Phe
 325 330 335
 Leu Thr Pro Ser Tyr Thr Trp Thr Pro Leu Lys Thr Glu Val Asp Glu
 340 345 350
 Ser Gln Ala Thr Lys Glu Ile Leu Ala Gln Lys Cys Lys Thr Tyr Ser
 355 360 365
 Thr Lys Thr Ile Gln Gln Asp Ser Asn Lys Leu Pro Cys Pro Leu Gly
 370 375 380
 Pro Leu Thr Val Trp His Glu Glu His Val Leu Asn Lys Asn Glu Ala

| | | | |
|---|-----|-----|-----|
| 385 | 390 | 395 | 400 |
| Thr Thr Lys Asn Leu Asn Gly Leu Pro Ile Lys Glu Val Pro Ser Leu | | | |
| 405 | 410 | 415 | |
| Glu Arg Asn Glu Gly Arg Ile Ala Gln Pro His His Gly Val Pro Tyr | | | |
| 420 | 425 | 430 | |
| Phe Arg Asn Ile Leu Gln Ser Glu Thr Glu Lys Leu Thr Ser His Cys | | | |
| 435 | 440 | 445 | |
| Phe Glu Trp Asp Arg Lys Leu Glu Leu Asp Ile Pro Asp Asp Ala Lys | | | |
| 450 | 455 | 460 | |
| Asp Leu Ile Arg Thr Ala Val Gly Gln Thr Arg Leu Leu Met Lys Glu | | | |
| 465 | 470 | 475 | 480 |
| Arg Phe Lys Gln Phe Glu Gly Leu Val Asp Asp Cys Glu Tyr Lys Arg | | | |
| 485 | 490 | 495 | |
| Gly Ile Lys Glu Thr Thr Cys Thr Asp Leu Asp Gly Phe Trp Asp Met | | | |
| 500 | 505 | 510 | |
| Val Ser Phe Gln Ile Glu Asp Val Ile His Lys Phe Asn Asn Leu Ile | | | |
| 515 | 520 | 525 | |
| Lys Leu Glu Glu Ser Gly Trp Gln Val Asn Asn Asn Met Asn His Asn | | | |
| 530 | 535 | 540 | |
| Met Asn Lys Asn Val Phe Arg Lys Lys Val Val Ser Gly Ile Ala Ser | | | |
| 545 | 550 | 555 | 560 |
| Lys Pro Lys Gln Asp Asp Ala Gly Arg Ile Ala Ala Arg Asn Arg Leu | | | |
| 565 | 570 | 575 | |
| Ala Ala Ile Lys Asn Ala Met Arg Glu Arg Ile Arg Gln Glu Gln Cys | | | |
| 580 | 585 | 590 | |
| Ala Glu Thr Ala Val Ser Val Ile Pro Lys Glu Val Asp Lys Ile Val | | | |
| 595 | 600 | 605 | |
| Phe Asp Ala Gly Phe Phe Arg Val Glu Ser Pro Val Lys Leu Phe Ser | | | |
| 610 | 615 | 620 | |
| Gly Leu Ser Val Ser Ser Glu Gly Pro Ser Gln Arg Leu Gly Thr Pro | | | |
| 625 | 630 | 635 | 640 |
| Lys Ser Val Asn Lys Ala Val Ser Gln Ser Arg Asn Glu Met Gly Ile | | | |
| 645 | 650 | 655 | |
| Pro Gln Gln Thr Thr Ser Pro Glu Asn Ala Gly Pro Gln Asn Thr Lys | | | |
| 660 | 665 | 670 | |
| Ser Glu His Val Lys Lys Thr Leu Phe Leu Ser Ile Pro Glu Ser Arg | | | |
| 675 | 680 | 685 | |
| Ser Ser Ile Glu Asp Ala Gln Cys Pro Gly Leu Pro Asp Leu Ile Gln | | | |
| 690 | 695 | 700 | |
| Glu Asn His Val Val Asn Lys Thr Asp Leu Lys Val Asp Cys Leu Ser | | | |
| 705 | 710 | 715 | 720 |
| Ser Glu Arg Met Ser Leu Pro Leu Leu Ala Gly Gly Val Ala Asp Asp | | | |
| 725 | 730 | 735 | |
| Ile Asn Thr Asn Lys Lys Glu Gly Ile Ser Asp Val Val Glu Gly Met | | | |
| 740 | 745 | 750 | |
| Glu Leu Asn Ser Ser Ile Thr Ser Gln Asp Val Leu Met Ser Ser Pro | | | |
| 755 | 760 | 765 | |
| Glu Lys Asn Thr Ala Ser Gln Asn Ser Ile Leu Glu Glu Gly Glu Thr | | | |
| 770 | 775 | 780 | |
| Lys Ile Ser Gln Ser Glu Leu Phe Asp Asn Lys Ser Leu Thr Thr Glu | | | |
| 785 | 790 | 795 | 800 |
| Cys His Leu Leu Asp Ser Pro Gly Leu Asn Cys Ser Asn Pro Phe Thr | | | |
| 805 | 810 | 815 | |
| Gln Leu Glu Arg Arg His Gln Glu His Ala Arg His Ile Ser Phe Gly | | | |
| 820 | 825 | 830 | |
| Gly Asn Leu Ile Thr Phe Ser Pro Leu Gln Pro Gly Glu Phe | | | |
| 835 | 840 | 845 | |

· 210 · 5
 · 211 · 2966
 · 212 · DNA
 · 213 · *Mus musculus*

· 220 ·
 · 221 · CDS
 · 222 · (301) ... (2714)

· 2400 · 5
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 ctccccgtcc caacccttttgc ctttccaaac aatttaaatg tccgcacagaa ccaacccatcc 120
 gcaaggccctcg ttccgaggggaa agggggcgggaa gttccggaa gtgttgccaa aagttccatcc 180
 aatccagccgc tggcagccggg aaattttcagt tccgtgaagg tccgggtccgg gaggttccatcc 240
 tggggatccgg tggagtttcc tggatggggaa aattttgtgg gatccagaaa ctgtttcagg 300
 atg ctg gtg tca cgt ttt gcc agt cgg ttt cgg aaa gac tcc aac act 348
 Met Leu Val Ser Arg Phe Ala Ser Arg Phe Arg Lys Asp Ser Ser Thr
 1 5 10 15
 gag atg gtt aga aac aac ttg gct cat aga aag ttt ctg ttt cag aag 376
 Glu Met Val Arg Thr Asn Leu Ala His Arg Lys Ser Leu Ser Gln Lys
 20 25 30
 gag aac aca cac aac gtc tat gag cga aac aca ccc ttc ggt ttg aag 444
 Glu Asn Arg His Arg Val Tyr Glu Arg Asn Arg His Phe Gly Leu Lys
 35 40 45
 gag gtc aac att cca ctg gaa ggg cga gag ctt ggt aat atc ccc gag 474
 Asp Val Asn Ile Pro Leu Glu Arg Glu Leu Gly Asn Ile His Glu
 50 55 60
 aca tcc ccc gac ccc tcc ccc gag aac gcc aac tcc aaa aca aac gag tcc 540
 Thr Ser Gln Asp Leu Ser Pro Glu Lys Ala Ser Ser Lys Thr Arg Ser
 65 70 75 80
 gta aaa atg gtc ctg aat gac ccc aac ccc aac ccc ccc ccc ccc aac aac tat 584
 Val Lys Met Val Leu Ser Asp Gln Arg Lys Gln Leu Leu Gln Lys Tyr
 85 90 95
 aac gaa gaa aaa ccc ccc aac ccc aac ccc aac ccc aac ccc aac ccc aac 636
 Lys Glu Glu Lys Gln Leu Gln Lys Leu Lys Glu Gln Arg Glu Lys Ala
 100 105 110
 aaa cgt gga gtg ttc aaa gtg ggt ccc tat aca ccc gtc gcc ccc ccc 684
 Lys Arg Gly Val Phe Lys Val Gly Leu Tyr Arg Pro Ala Ala Pro Gly
 115 120 125
 ttt ctt gtc aca gac cag aac ggt ggg aca gtc gag ccc gaa aac gtc 732
 Phe Leu Val Thr Asp Gln Arg Gly Ala Lys Ala Glu Pro Glu Lys Ala
 130 135 140
 ttt ccc cat act gga cgg att aca aca tcc aac acc aca gaa tat atg 780
 Phe Pro His Thr Gly Arg Ile Thr Arg Ser Lys Thr Lys Glu Tyr Met
 145 150 155 160
 gag cag act aac att ggt aac aac aat gtt ccc aac aac aac aac aac aac 828

Glu Gln Thr Lys Ile Gly Ser Arg Asn Val Pro Lys Ala Thr Gln Ser
 165 171 175

gac caa aga caa aat tct gaa aaa cca cca tta gac aga gag aga aaa 876
 Asp Gln Arg Gln Thr Ser Glu Lys Gln Pro Leu Asp Arg Glu Arg Lys
 180 185 190

gtt atg cag cct gtg ctg ttc acg tca ggg aaa ggg act gaa tca gag 924
 Val Met Gln Pro Val Leu Phe Thr Ser Gly Lys Gly Thr Glu Ser Ala
 195 200 205

gct act cag aga gcc aag ctg atg gcc cga aca gtg tca tcc act aca 972
 Ala Thr Gln Arg Ala Lys Leu Met Ala Arg Thr Val Ser Ser Thr Thr
 210 215 220

aga aag cca gtc aca aga gcc acg aat gag aaa ggg tca gaa aga atg 1020
 Arg Lys Pro Val Thr Arg Ala Thr Asn Glu Lys Gly Ser Glu Arg Met
 225 230 235 240

aga cca agt gga ggg aga cct gcc aaa aac cca gaa ggg aag ccg gac 1068
 Arg Pro Ser Gly Gly Arg Pro Ala Lys Pro Glu Gly Lys Pro Asp
 245 250 255

aag gtc att cct tcc aaa gtt gag cgg gac gaa aag cat ttg gat tcc 1116
 Lys Val Ile Pro Ser Lys Val Glu Arg Asp Glu Lys His Leu Asp Ser
 260 265 270

cag acc agg gaa aca agt gaa atg ggt ttg ctt ggt gtc ctc cga gaa 1164
 Gln Thr Arg Glu Thr Ser Glu Met Gly Leu Leu Gly Val Phe Arg Glu
 275 280 285

gtg gaa agc ttg cct gca aca gcc cct gcc caa gca aag gaa agg aag 1212
 Val Glu Ser Leu Pro Ala Thr Ala Pro Ala Gln Gly Lys Glu Arg Lys
 290 295 300

tcc ttt gcc ccc aag cac ttt gtc ttc gag ccc ccc ttt ggt gtt ttg aag 1260
 Ser Phe Ala Pro Lys His Cys Val Phe Glu Pro Pro Cys Gly Leu Lys
 305 310 315 320

agc tac cag gtg gtc ccc ttg agc cct aga agt gca aac gtc ttg ttg 1308
 Ser Tyr Gln Val Ala Pro Leu Ser Pro Arg Ser Ala Asn Ala Phe Leu
 325 330 335

aca ccc aat ttt gat tgg aac cag tta aga cca gaa gtt ttt agc act 1356
 Thr Pro Asn Cys Asp Trp Asn Gln Leu Arg Pro Glu Val Phe Ser Thr
 340 345 350

aca act caa gac aaa gca aat gaa atc ttg gtc ctt ctt gca gga ttg gag 1404
 Thr Thr Gln Asp Lys Ala Asn Glu Ile Leu Val Glu Gln Gly Leu Glu
 355 360 365

tcc cta aca gac cgt agt aaa gaa cat gtc tta aat cag aag ggc gtc 1452
 Ser Leu Thr Asp Arg Ser Lys Glu His Val Leu Asn Gln Lys Gly Ala
 370 375 380

tct act tca gat tca aat ccc gtc ttt gtg aaa gga gtc cca tgg ttt 1500
 Ser Thr Ser Asp Ser Asn His Ala Ser Val Lys Gly Val Pro Cys Ser

| 385 | 390 | 395 | 400 | |
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| Slu Gly Ser Glu Gly Gln Thr Ser Gln Pro Pro His Asp Val Pro Tyr | | | | |
| 405 | 410 | 415 | | |
| ttc aga aaa atc ctc caa tca gaa act gac agg ctg acc tcg cac tgc | | | | 1536 |
| Phe Arg Lys Ile Leu Gln Ser Glu Thr Asp Arg Leu Thr Ser His Cys | | | | |
| 420 | 425 | 430 | | |
| ctg gag tgg gag ggg aag ctg gac ctg gac atc tct gat gaa gct aaa | | | | 1644 |
| Leu Glu Trp Glu Gly Lys Leu Asp Leu Asp Ile Ser Asp Glu Ala Lys | | | | |
| 435 | 440 | 445 | | |
| ggc ctt atc cgt aca acg gtt ggt caa aca aga ctc ctt atc aag gag | | | | 1631 |
| Gly Leu Ile Arg Thr Thr Val Gly Gln Thr Arg Leu Leu Ile Lys Glu | | | | |
| 450 | 455 | 460 | | |
| aga ttc aga cag ttt gaa gga ctg gtg gac aac tgc gag tat aua cgg | | | | 1740 |
| Arg Phe Arg Gln Phe Glu Gly Leu Val Asp Asn Cys Glu Tyr Lys Arg | | | | |
| 465 | 470 | 475 | 480 | |
| ggc gaa aag gag aac acc tgc aca gat ctg gat gga ttc tgg gat atg | | | | 1731 |
| Gly Glu Lys Glu Thr Thr Cys Thr Asp Leu Asp Gly Phe Trp Asp Met | | | | |
| 485 | 490 | 495 | | |
| gtt agt ttt cag gtc gat gat gtg aac cag aaa ttc aac aac ctg atc | | | | 1636 |
| Val Ser Phe Gln Val Asp Asp Val Asn Glu Lys Phe Asn Asn Leu Ile | | | | |
| 500 | 505 | 510 | | |
| aaa ctt gag gcg tca gga tgg aaa gac agc aat aat cca agc aua aaa | | | | 1634 |
| Lys Leu Glu Ala Ser Gly Trp Lys Asp Ser Asn Asn Pro Ser Lys Lys | | | | |
| 515 | 520 | 525 | | |
| gtc ctc cgg aaa aaa att gtg cct ggt aga aca aac aac gca aag cag | | | | 1931 |
| Val Leu Arg Lys Lys Ile Val Pro Gly Arg Thr Ser Lys Ala Lys Gln | | | | |
| 530 | 535 | 540 | | |
| gat gac gac gga cca gcg gca gct aac agt aac ctt gtc aat aag | | | | 1937 |
| Asp Asp Asp Gly Arg Ala Ala Arg Ser Arg Leu Ala Ala Ile Lys | | | | |
| 545 | 550 | 555 | 560 | |
| aat gca atg aaa ggc agg cca cag cag gaa gtg cag gca cat gca gca | | | | 2028 |
| Asn Ala Met Lys Gly Arg Pro Gln Glu Val Gln Ala His Ala Ala | | | | |
| 565 | 570 | 575 | | |
| gtc ccc gag acc aca aag gaa gtt gac aaa aca gtc ttt gac gtc ggg | | | | 2076 |
| Ala Pro Glu Thr Thr Lys Glu Val Asp Lys Ile Val Phe Asp Ala Gly | | | | |
| 580 | 585 | 590 | | |
| ttt ttc aga atc gag aac cca gtg aag tca ttc tca gtc ctg tct tct | | | | 2124 |
| Phe Phe Arg Ile Glu Ser Pro Val Lys Ser Phe Ser Val Leu Ser Ser | | | | |
| 595 | 600 | 605 | | |
| gaa cgt cgt tct caa aga ttt gga aca cct ctg tct gcc aac aca gtt | | | | 2172 |
| Glu Arg Arg Ser Gln Arg Phe Gly Thr Pro Leu Ser Ala Ser Lys Val | | | | |
| 610 | 615 | 620 | | |

gtg cct gag ggc agg gct gca ggg gac ctt ctg aga cag aag atg cca 2220
 Val Pro Glu Gly Arg Ala Ala Gly Asp Leu Leu Arg Gln Lys Met Pro
 625 630 635 640

ctg aag aag ccg gac cct cag agc aag aat gag cat gtt gat cgg 2268
 Leu Lys Pro Asp Pro Gln Ser Ser Lys Ser Glu His Val Asp Arg
 645 650 655

acg ttt tca gat ggt ctt gaa agc agg tcc cac gta gaa gac acc ccc 2316
 Thr Phe Ser Asp Gly Leu Glu Ser Arg Cys His Val Glu Asp Thr Pro
 660 665 670

tgt cct gga gag caa gat tca agt gac ata gag cat gat gta aat aas 2364
 Cys Pro Gly Glu Gln Asp Ser Ser Asp Ile Glu His Asp Val Asn Lys
 675 680 685

ata aat gtc aag atg gat tgt ttc tat gat gaa acg aat ttg cct ctt 2412
 Ile Asn Val Lys Met Asp Cys Phe Ser Val Glu Thr Asn Leu Pro Leu
 690 695 700

cct gct ggt gat gct aat acc aat caa aca gaa gca atc tca gcc gtg 2460
 Pro Ala Gly Asp Ala Asn Thr Asn Gln Lys Glu Ala Ile Ser Ala Val
 705 710 715 720

A.1
 gaa gga ggc agc act gca gtc acc tcc cag gat ttg ctg atg aac aac 2508
 Glu Gly Ala Ser Thr Ala Val Thr Ser Gln Asp Leu Leu Met Ser Asn
 725 730 735

cct gag aca aat acc tcc tca cag agc aac acc tca caa gaa gaa gct 2556
 Pro Glu Thr Asn Thr Ser Gln Ser Asn Thr Ser Gln Glu Gly Ala
 740 745 750

gag gcg tcc cag tca gta ctg tta cat aca aat ctc act tat gaa tcc 2604
 Glu Ala Ser Gln Ser Val Leu Leu His Lys Ser Leu Thr Ser Glu Cys
 755 760 765

cac ctt ctt gaa cca cca ggc ctc agc tgc acc aac ccc tgc act cgg 2652
 His Leu Leu Glu Pro Pro Gly Leu Ser Cys Thr Ser Pro Cys Thr Arg
 770 775 780

gag gag acc aca cag cca gat cgc agc aga cag ttc tcc ttt gga ggt 2700
 Glu Glu Thr Arg Gln Pro Asp Arg Ser Arg Gln Phe Ser Phe Gly Gly
 785 790 795 800

gac ctc att ctc ttc tca cca cta tgaccctgaa ggaaacacca ggagggctt 2754
 Asp Leu Ile Leu Phe Ser Pro Leu
 805

aaatttaaca tgacttttaa tattaattta aataaacatt cagtgtctgc ctttaatccc 2814
 agcaactccgg gaggttaggg caggggatt tctgatgttg aggccagct ggtctacaga 2874
 gtgatgttcca ggacagccag gactatacag agaaacccctg tctgaaaaaa cccaaaataaa 2934
 taaataaaata aataaacaaa caaacaaaca aa 2966

<210> 6
 <211> 2979
 <212> DNA

4213, Homo sapiens

4220,

4221, CDS

4222, (218) ... (2755)

| | | | | | | | | |
|-------------|--------------|-------------|-------------|------------|---------------------|---------------------|---------------------|-----|
| 4400 > 6 | | | | | | | | |
| atccaaaccaa | tcgcaagcct | cgttgagtgg | aagggttggg | atcttcccg | gaagtttgg | 60 | | |
| ttaaageccs | tccaaatccags | ggctgggtgc | ggcaagtstg | aatttgggg | aggctcggt | 120 | | |
| tgtgagggtt | cctgttccgg | agtcgggggt | ggtgcgtccag | accgaggttt | ctttacttt | 180 | | |
| tgtttgggtt | aggtttccacg | ctagaagggtg | gttcagg | atg tct | tca tca cat ttt | 235 | | |
| | | | | Met | Ser Ser Ser His Phe | | | |
| | | | | 1 | 5 | | | |
| gcc | agt cga | cac agg | aag gat | ata | agt act | aaa | 283 | |
| Ala | Ser Arg | His Arg | Lys Asp | Ile Ser | Thr Glu | Met Ile Arg Thr Lys | | |
| 10 | | | | 15 | | 20 | | |
| att | gtc cat | agg aaa | tca ctg | tct | ca gaa | aat aga | cat aag gaa | 331 |
| Ile | Ala His | Arg Lys | Ser Ser | Glu Lys | Glu Asn | Arg His Lys | Glu | |
| 25 | | | | 30 | | 35 | | |
| tac | gaa cga | aat aga | cac ttt | ggt ttg | ata gat | gtt aac | att cca acc | 379 |
| Tyr | Glu Arg | Asn Arg | His Phe | Gly Leu | Lys Asp | Val Asn | Ile Pro Thr | |
| 40 | | | | 45 | | 50 | | |
| ttg | gaa ggt | aga att | ctt gtt | gaa tta | gtt gag | aca tct | caa gag ctt | 427 |
| Leu | Glu Gly | Arg Ile | Leu Val | Glu Leu | Arg Glu | Ser Thr | Gln Glu Leu | |
| 55 | | | | 60 | | 65 | 70 | |
| gtt | cca gaa | aag aac | aat gtt | aag cca | aag gca | atg aaa | act att cta | 475 |
| Val | Pro Glu | Lys Thr | Asn Val | Pro Asn | Ala Met | Lys Thr | Ile Leu | |
| 75 | | | | 80 | | 85 | | |
| ggt | gat caa | cga aca | cag atg | ctc caa | aaa tac | aaa gaa | aag caa | 523 |
| Gly Asp | Gln Arg | Gln Met | Leu Gln | Lys Tyr | Lys Glu | Lys Gln | | |
| 90 | | | | 95 | | 100 | | |
| ctt | caa aaa | ttg aca | gag cag | aga gag | aaa gtc | aaa cga | gga ata ttt | 571 |
| Leu Gln | Lys Leu | Lys Glu | Gln Arg | Glu Lys | Ala Lys | Arg Gly | Ile Phe | |
| 105 | | | | 110 | | 115 | | |
| aaa | gtg ggt | cgt ttt | aga ctc | gtt ctc | ttt ctt | tta tca | aac | 619 |
| Lys Val | Gly Arg | Tyr Arg | Pro Asp | Met Pro | Cys Phe | Leu Ser | Asn | |
| 120 | | | | 125 | | 130 | | |
| cag | aat gtc | gtg aaa | gtc gag | cca aaa | aaa aac | gtc att | ttt cca tct tct gta | 667 |
| Gln Asn | Ala Val | Lys Ala | Glu Pro | Lys Lys | Ala Ile | Pro Ser | Ser Val | |
| 135 | | | | 140 | | 145 | 150 | |
| cgg | att aca | agg tca | aag gcc | aaa gac | caa atg | gag cag | act aag att | 715 |
| Arg Ile | Thr Arg | Ser Lys | Ala Lys | Asp Gln | Met Glu | Gln Thr | Lys Ile | |
| 155 | | | | 160 | | 165 | | |
| gat | aac gag | agt gat | gtt cga | gca atc | cga ctc | gtt cca | aga caa act | 763 |
| Asp Asn | Glu Ser | Asp Val | Arg Ala | Ile Arg | Pro Gly | Pro Arg | Gln Thr | |
| 170 | | | | 175 | | 180 | | |

| | |
|---|------|
| tct gaa aag aaa gty tca gag aaa gag aaa gaa gtt gtg cag cct gta Ser Glu Lys Lys Val Ser Asp Lys Glu Lys Lys Val Val Gln Pro Val 185 190 195 | 811 |
| atg ccc aca tcg ttg aga atg act cca tca gct act cca gca gca aag Met Pro Thr Ser Leu Arg Met Thr Arg Ser Ala Thr Gln Ala Ala Lys 200 205 210 | 859 |
| cag gtt ccc aga aca gtc tca tct acc aca gca aga aag cca gtc aca Gln Val Pro Arg Thr Val Ser Thr Thr Ala Arg Lys Pro Val Thr 215 220 225 230 | 907 |
| aga gct gct aat gaa aac gaa cca gaa gga aag gtg cca agt aaa gga Arg Ala Ala Asn Glu Asn Glu Pro Glu Gly Lys Val Pro Ser Lys Gly 235 240 245 | 955 |
| aga cct gcc aaa aat gta gaa aca aca aaa ccc gac aag ggt att tct tgc Arg Pro Ala Lys Asn Val Glu Thr Lys Pro Asp Lys Gly Ile Ser Cys 250 255 260 | 1003 |
| aaa gtc gat agt gaa gaa aat act ttg aat tca caa act aat gca aca Lys Val Asp Ser Glu Glu Asn Thr Leu Asn Ser Gln Thr Asn Ala Thr 265 270 275 | 1051 |
| agt gga atg aat cca gat gga gtc tta tca gaa atg gaa aac ttc cct Ser Gly Met Asn Pro Asp Gly Val Leu Ser Lys Met Glu Asn Leu Pro 280 285 290 | 1099 |
| gag ata aat act gca aaa ata aaa ggg aag aat tca ttc gca cct aag Glu Ile Asn Thr Ala Lys Ile Lys Gly Lys Asn Ser Phe Ala Pro Lys 295 300 305 310 | 1147 |
| gat ttt atg ttt cag cca ctg gat ggt ctg aag acc tat caa gca aca Asp Phe Met Phe Gln Pro Leu Asp Gly Leu Lys Thr Tyr Gln Val Thr 315 320 325 | 1195 |
| cct atg act ccc aga agt gcc aat gct ttt ttg aca ccc agt tac acc Pro Met Thr Pro Arg Ser Ala Asn Ala Phe Leu Thr Pro Ser Tyr Thr 330 335 340 | 1243 |
| tgg act cct tta aaa aca gaa gtt gat gag tat caa gca aca aua gaa Trp Thr Pro Leu Lys Thr Glu Val Asp Glu Ser Gln Ala Thr Lys Glu 345 350 355 | 1291 |
| att ttg gca caa aca aca aat ttt ttt aat aca aca aca aat gaa Ile Leu Ala Gln Lys Lys Lys Thr Tyr Ser Thr Lys Thr Ile Gln Gln 360 365 370 | 1339 |
| gat tca aat aca ttg cca ttt cct ttg ggt ctt cta act gtt tgg cat Asp Ser Asn Lys Leu Pro Cys Pro Leu Gly Pro Leu Thr Val Trp His 375 380 385 390 | 1387 |
| gaa gaa cat gtt tta aat aca aat gaa gct act act aca aat tca aat Glu Glu His Val Leu Asn Lys Asn Glu Ala Thr Thr Lys Asn Leu Asn 395 400 405 | 1435 |

| | | | | | |
|---|-----|-----|-----|------|------|
| ggc ctt cca ata aaa gaa gtc cca tca ctt gaa aga aat gaa ggt cga | 410 | 415 | 420 | 1483 | |
| Gly Leu Pro Ile Lys Glu Val Pro Ser Leu Glu Arg Asn Glu Gly Arg | | | | | |
| att gct cag ccc cac cat ggt gtg cca tat ttc aga aat atc ctc cag | 425 | 430 | 435 | 1531 | |
| Ile Ala Gln Pro His His Gly Val Pro Tyr Phe Arg Asn Ile Leu Gln | | | | | |
| tca gaa act gag aaa tta act tca cat tgc ttc gag ttg gag agg aaa | 440 | 445 | 450 | 1579 | |
| Ser Glu Thr Glu Lys Leu Thr Ser His Cys Phe Glu Trp Asp Arg Lys | | | | | |
| ctt gaa ttg gag att cca gat gat gct aaa cat ctt att cgc aca gca | 455 | 460 | 465 | 470 | 1627 |
| Leu Glu Leu Asp Ile Pro Asp Asp Ala Lys Asp Leu Ile Arg Thr Ala | | | | | |
| gtt ggt caa aca aga ctc ctt atg aag gaa agg ttt aaa cag ttt gaa | 475 | 480 | 485 | 490 | 1675 |
| Val Gly Gln Thr Arg Leu Leu Met Lys Glu Arg Phe Lys Gln Phe Glu | | | | | |
| gga ctg gtt gat gat tgt gaa tat aaa cga ggt ata aag gag act acc | 490 | 495 | 500 | 505 | 1713 |
| Gly Leu Val Asp Asp Cys Glu Tyr Lys Arg Gly Ile Lys Glu Thr Thr | | | | | |
| tgt aca gat ctg gat gga ctt tgg gat atg gtt agt ttt cag ata gaa | 505 | 510 | 515 | 520 | 1771 |
| Cys Thr Asp Leu Asp Gly Phe Trp Asp Met Val Ser Phe Gln Ile Glu | | | | | |
| gat gta atc cac aaa ttc aac aat ctg atc aaa ctt ggg gaa tct ggg | 520 | 525 | 530 | 535 | 1819 |
| Asp Val Ile His Lys Phe Asn Asn Leu Ile Lys Leu Glu Glu Ser Gly | | | | | |
| tgg caa gtc aat aat aat atg aat cat aat atg aac aaa aat gtc ttt | 535 | 540 | 545 | 550 | 1867 |
| Trp Gln Val Asn Asn Met Asn His Asn Met Asn Lys Asn Val Phe | | | | | |
| agg aaa aaa gtt gtc tca ggt ata gca aat aaa cca aaa cag gat gat | 555 | 560 | 565 | 570 | 1915 |
| Arg Lys Lys Val Val Ser Gly Ile Ala Ser Lys Pro Lys Gln Asp Asp | | | | | |
| gct gga aga att gca gcg aca aat cgc cta gct gca ata aaa aat gca | 570 | 575 | 580 | 585 | 1963 |
| Ala Gly Arg Ile Ala Ala Arg Asn Arg Leu Ala Ala Ile Lys Asn Ala | | | | | |
| atg aga gag aca att agg cag gaa gaa ttt gct gaa aca gca gtt tct | 585 | 590 | 595 | 600 | 2011 |
| Met Arg Glu Arg Ile Arg Gln Glu Glu Cys Ala Glu Thr Ala Val Ser | | | | | |
| gtg ata cca aag gaa gtt gat aaa ata gtc ttc gat gat gga ttt ttc | 600 | 605 | 610 | 615 | 2059 |
| Val Ile Pro Lys Glu Val Asp Lys Ile Val Phe Asp Ala Gly Phe Phe | | | | | |
| aga gtt gaa agt cct gtt aaa tta ttc tca gga ctt ctc gtc tct tct | 615 | 620 | 625 | 630 | 2107 |
| Arg Val Glu Ser Pro Val Lys Leu Phe Ser Gly Leu Ser Val Ser Ser | | | | | |
| gaa ggc cct tct cca aga ctt gga aca ctc aag tct gtc aac aaa gct | | | | | 2155 |

Glu Gly Pro Ser Gln Arg Leu Gly Thr Pro Lys Ser Val Asn Lys Ala
 635 640 645

gta tct cag agt aqa aat gag atg ggc att cta caa caa act aca tca 2203
 Val Ser Gln Ser Arg Asn Glu Met Gly Ile Pro Gln Gln Thr Thr Ser
 650 655 660

cca gaa aat gcc ggt cct cag aat aca aac aat gaa cat gtg aag aag 2251
 Pro Glu Asn Ala Gly Pro Gln Asn Thr Lys Ser Glu His Val Lys Lys
 665 670 675

act ttg ttt ttg agt att cct gaa aca aca aca aat gaa gat gat 2309
 Thr Leu Phe Leu Ser Ile Pro Glu Ser Arg Ser Ser Ile Glu Asp Ala
 680 685 690

cag tgt cct gga tta cca gat tta att gaa gaa aac cat gtt gta aat 2347
 Gln Cys Pro Gly Leu Pro Asp Leu Ile Glu Glu Asn His Val Val Asn
 695 700 705 710

aag aca gac ttg aac gtg gat tgt tta tcc aat gag aca atg agt ttg 2395
 Lys Thr Asp Leu Lys Val Asp Cys Leu Ser Ser Glu Arg Met Ser Leu
 715 720 725

cct ctt ctt gct ggt gga gta gca gat gat att aat act aac aca aac 2443
 Pro Leu Leu Ala Gly Val Ala Asp Asp Ile Asn Thr Asn Lys Lys
 730 735 740

gaa gga att tca gat gtt gtg gaa gga atg gaa ctg aat tct tca att 2491
 Glu Gly Ile Ser Asp Val Val Glu Gly Met Glu Leu Asn Ser Ser Ile
 745 750 755

aca tca cag gat gtt ttg atg agt aca aat gaa aac aat aca gat tca 2539
 Thr Ser Gln Asp Val Leu Met Ser Ser Pro Glu Lys Asn Thr Ala Ser
 760 765 770

caa aat aac atc tta gaa gaa ggg gaa act aca att tct tca gaa 2587
 Gln Asn Ser Ile Leu Glu Glu Gly Glu Thr Lys Ile Ser Gln Ser Glu
 775 780 785 790

cta ttt gat aat aac agt ctc act act gaa tgc cac ctt ctt gat tca 2635
 Leu Phe Asp Asn Lys Ser Leu Thr Thr Glu Cys His Leu Leu Asp Ser
 795 800 805

cca ggt cta aac tgc agt aat cca ttt act cag ctg gag agg aca cat 2683
 Pro Gly Leu Asn Cys Ser Asn Pro Phe Thr Gln Leu Glu Arg Arg His
 810 815 820

caa gaa cat gcc aca cac att tct ttt ggt ggt aac ctg att act ttt 2731
 Gln Glu His Ala Arg His Ile Ser Phe Gly Gly Asn Leu Ile Thr Phe
 825 830 835

tca cct cta caa cca gga gaa ttt tgaatttaaa aataaatcca aacattttcc 2779
 Ser Pro Leu Gln Pro Gly Glu Phe
 840 845

ttcatattat caatgtttat atattcctta gactattgaa attttggaga aaatgttattt 2845
 gtgttcactt ctatagcata taatgtttta atattctgtg ttcatcaaag tggattttag
 2905

atataacttt tctcaaggaa agtggggata ttttgtacat tttcaacaca gaataaaaaa 2965
tgtactgtgc cttg 2979

orf 15